International Journal of Sciences: Basic and Applied Research (IJSBAR)

ISSN 2307-4531
(Print & Online)

http://gssrr.org/index.php?journal=JournalOfBasicAndApplied

Detection of Intestinal Parasitic among People Infection with Diarrhea in Al-Fhood District in Thi-Qar Province, Iraq

Rabab Al-Mosawi*

Directorate of Education in Thi-Qar, Iraq
Email: almosawim02@gmail.com

Abstract

Intestinal parasites are repeatedly transmitted via contaminated drinking water or foot, but may also be spread from person to person through fecal-oral transmission. Gastrointestinal protozoa and helminthes parasites are wildly causing medical and public health problems in developing countries. In period from September 2015 till November 2015 a surveillance study was done, 200 stool samples were collected from attending individuals to Al- Fhood hospital in Al-Fhood district of Thi-Qar province in Iraq, and checks the usual known methods for the detection of intestinal parasites. The overall prevalence of intestinal parasitic infections in the study area was 30.5%. The parasitological examination of the stool samples showed that the following parasites were detected in the order of importance. *Entamoeba histolytica* (17.5%), *Giardia lamblia* (7.5), *Entamoeban coli* (2%) *Hymenolepis nana* (2.5%) and *Enterobius vermicularis* (1.0%) There were significant differences between them. This study also reported that there were significant differences in the rate of infections with intestinal parasites according to sex. The overall rates of infection were higher 31.34% in females than in males 30.08 %. The prevalence of intestinal parasitic infections among the age group least 6 years (31.8%) was higher than the other age groups. Intestinal parasitic infection is an important public health problem in Al-Fhood district, Thi-Qar province, Iraq. It is necessary to develop effective prevention and control strategies including health education and environmental sanitation improvement.

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* Corresponding author.

Keywords: **:** Intestinal parasites; Protozoa; Helminthes; human; stool specimen**.**

1. Introduction

Intestinal parasites of humans are cause of important health problems in the most communities, especially those situated in tropical and subtropical area [1].Intestinal parasitic infections are the main health problems which can cause mortality and morbidity among infected people. They are also associated with stunting of linear growth, low educational and physical weakness achievement in children [2]. In addition, they cause iron deficiency anemia, loss of appetite and other physical and mental problems [3]. The frequency of diarrheal and intestinal parasitic diseases in developing countries is extremely high, affecting nearly all inhabitants at some point during their lives [4]. At least one-third of the world's population is infected with intestinal parasites [5].

2. Materials and Methods

In period from September 2015 till November 2015 a surveillance study was done at Al-Fhood of Thi-Qar province. A total of 200 Stool specimens collected in a clean, watertight container with a screw –cap lid. The stool first examined by the naked eye for its characteristics such as its consistency, color, texture and presence of blood and mucus [6]. Second examination was microscopically by using direct smear with normal saline (0.9%) [7]. Third examination was sedimentation technique [8]. Chi square test was employed for the statistical analysis by spss version 17 program.

3. Results

The overall prevalence of intestinal parasitic infections in the study area was 30.5% of 200 fecal samples examined in Al-Fhood district (Table 1).

Table 1: The overall prevalence of Intestinal parasites of human of 200 fecal samples examined in Al-Fhood district

Total number	Infection		Non infection	
	N.	%	N.	%
200	61	30.5	139	69.5

The parasitological examination of the stool samples showed that the following parasites were detected in the order of importance. *Entamoeba histolytica* (17.5%), *Giardia lamblia* (7.5), *Entamoeban coli* (2%) *Hymenolepis nana* (2.5%) and *Enterobius vermicularis* (1.0%) There were significant differences between them (Table 2).

This study also reported that there were significant differences in the rate of infections with intestinal parasites according to sex. The overall rates of infection were higher 31.34% in females than in males 30.08 %(Table3).

Table 2: Rates (%) of infection with types of parasites of human of 200 fecal samples examined in Al-Fhood district

Phylum Parasites	Intestinal Parasites	No. of positive samples	% from total number of samples	Statistical Analysis between two phylum
Protozoa	*E. histolytica*	35	17.5	
	G. lamblia	15	7.5	
	E.Coli	4	2	
Total protozoa		54	27	Chi-Square= 26.31 ** Df=1 P=0.00
Helminthes	*H. nana*	5	2.5	
	E. vermicularis	2	1	
Total Helminthes		7	3.5	
Total		61	30.5	
Statistical Analysis	Chi-Square=61.54*; df=4 ; P=0000 * Significant differences (P< 0.05).			

Table 3: Rates of infections with intestinal parasites according Sex

Sex	Total	Infection		No infection	
		N.	%	N.	%
Male	133	40	30.08	93	69.62
Female	67	21	31.34	46	68.66
Total	200	61	30.5	139	69.5
Statistical Analysis		Chi-Square=5.91; df=1 ; P=0.015 * Significant differences (P<0.05).			

The overall prevalence of intestinal parasitic infections in the study area was 30.5% of which 31.8% among the age group <6years old , 28.5% among the age group of 6-18 years old and 29.8% among the age group of >18 years old. There were significant differences between them (Table 4).

Table 4: Rates of infections with intestinal parasites according Age groups

Groups	Total	Infection		Non infection	
		N.	%	N.	%
<6	91	29	31.8	62	68.1
6-18	42	12	28.5	30	71.4
>18	67	20	29.8	47	70.1
Total	200	61	30.5	139	69.5
Statistical Analysis		Chi-square= 7.115*; df= 2; P=0.29 * Significant differences (P< 0.05).			

4. Discussion

The overall prevalence of intestinal parasitic infections in the study area was 30.5% of 200 fecal samples examined in Al-Fhood district .Our results agree with the regional and universal trend for one-third of the world's population is infected with intestinal parasites [5]. This result agreement with other study by 9 while this result was lower than those obtained by several researchers from different region in Iraq by 10 and 11 which recorded high percentage of intestinal parasites infection 43.1%, 75.51% respectively. The difference in prevalence of infections in these regions is due to different factors such as geographic, socioeconomic, malnutrition, poverty, personal and community hygiene, population density, unavailability of drinkable water and poor sanitary facilities [12] .

Most of intestinal parasite infections in this study were due to protozoan like *Entamoeba histolytica* and *Giardia lamblia*. These two protozoans remain the most common intestinal parasitic pathogens (25%) in the study population. The transmission of these parasites occurs via fecal-oral route, either directly from person-to-person or indirectly by drinking or eating fecal contaminated water and food [13] . In contrast to protozoan infections, the prevalence of helminthes infections in our result were significantly low (7%) and it was mainly seen in those population. Similar observations have been made in studies performed in the neighboring countries[13; 14].The reasons for this may be due to unfavorable ecological environment and other prevailing socio-cultural factors that influence parasite survival and transmission. In south Iraq this region , the dry harsh desert environment adversely and the locally prevailing lengthy summer affect the microclimates of the microhabitats in which helminth eggs and larvae can normally survive until infection of the final hosts is accomplished [15].

In our study, the rate of infection was higher in males (31.43%) as compared to females (30.8%). The results were similar to those of 16but were inconsistent with the study by 17 while 18 reported similar rates in both the sexes. In addition, there were significant differences in the rate of infections with intestinal parasites according to sex, this result was agreement with other study [19,20] while it disagreement with other study [21;22] . That means, the results relate to daily activities of an individual like methods of defecation and habitats rather than

type of gender.

The prevalence of intestinal parasitic infections among the age group least 6 years (31.8%) was higher than the other age groups .This result was agreement with other study showed that the prevalence of intestinal parasitic infections among the age group 10 years (78.4%) was higher than the other age groups [23]. The higher prevalence in this age group was due to the high contamination of soil where the children always play and ate food without washing their hands.

4. Conclusions

Intestinal parasitic infection is an important public health problem in Al-Fhood distric,Thi-Qar province, Iraq. It is necessary to develop effective prevention and control strategies including health education and environmental sanitation improvement.

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